

CLAIMS

What is claimed is:

1. A method of manufacturing polycrystalline silicon thin film using a laser beam to crystallize amorphous silicon thin film, the method comprising overlappingly irradiating the laser beam onto a region wider than $0.5\ \mu\text{m}$ when crystallizing the amorphous silicon thin film.
2. The method of manufacturing polycrystalline silicon thin film according to claim 1, wherein the region onto which the laser beam is overlappingly irradiated is larger than $1\ \mu\text{m}$.
3. The method of manufacturing polycrystalline silicon thin film according to claim 1, wherein SLS (sequential lateral solidification) is used.
4. A thin film transistor comprising the polycrystalline silicon thin film manufactured according to the method of claim 1.
5. The thin film transistor according to claim 4, wherein an average width of grains of the polycrystalline silicon thin film is at least $0.2\ \mu\text{m}$.
6. A method of manufacturing polycrystalline silicon thin film by crystallizing amorphous silicon using a laser beam, the method comprising using a mask with a laser transmission region that is wider than a laser non-transmission region by more than $1\ \mu\text{m}$.
7. The method of manufacturing polycrystalline silicon thin film according to claim 6, wherein the mask is formed in a rectangular shape.
8. The method of manufacturing polycrystalline silicon thin film according to claim 6, wherein an overlappingly irradiated width of the thin film is larger than $0.5\ \mu\text{m}$.
9. The method of manufacturing polycrystalline silicon thin film according to claim 8, wherein the overlappingly irradiated width is $1\ \mu\text{m}$ or more.
10. The method of manufacturing polycrystalline silicon thin film according to claim 6, wherein SLS (sequential lateral solidification) is used.

11. A thin film transistor comprising the polycrystalline silicon thin film manufactured according to the method of claim 6.

12. The thin film transistor according to claim 11, wherein an average width of grains of the polycrystalline silicon is at least 0.2.

13. A method of manufacturing polycrystalline silicon thin film, the method comprising overlappingly irradiating already formed crystalline silicon in a region with a width larger than $0.5\ \mu\text{m}$.

14. The method according to claim 13, wherein the overlapping irradiation is done by moving a laser transmission region of a mask more than $0.5\ \mu\text{m}$.

15. A thin film transistor comprising a polycrystalline thin film having an average grain width of at least $0.2\ \mu\text{m}$, wherein the thin film was formed by overlappingly irradiating a region of the thin film, the region being more than $0.5\ \mu\text{m}$ wide.